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Lewis Research Center's Policy And Practices For Funding Costs Of Operations

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National Aeronautics
and Space Administration

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BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

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APRIL 11, 1972



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-158547

Dear Mr. Downing:

This is our report on the review we made at the Lewis Research Center, Cleveland, Ohio, pursuant to your request of August 5, 1971. Our objective was to determine whether the Center was following the National Aeronautics and Space Administration's policy for charging expenses to the Research and Development and the Research and Program Management appropriations.

The similarity of the language in the two appropriations for operating expenses permits similar transactions to be charged to either appropriation. NASA policy provides that the use, rather than the nature, of an item should determine which appropriation is to be charged. Under this concept, the Research and Development appropriation is to be charged when an expense is identified with a specific project and the Research and Program Management appropriation is to be charged when no project is identified.

Although the Center usually followed this concept when making charges against its appropriations for the transactions we reviewed, we found a few transactions which were identified with a project but which were charged to the Research and Program Management appropriation and other transactions which were not identified with a project but which were charged to the Research and Development appropriation.

We have not obtained agency comments on this report. As agreed to with your office, a copy of this report is being sent to the Chairman, Subcommittee on NASA Oversight of the House Committee on Science and Astronautics.

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We plan to make no further distribution of this report unless copies are specifically requested, and then we shall make distribution only after your agreement has been obtained or public announcement has been made by you concerning the contents of the report.

Sincerely yours,


Comptroller General
of the United States

The Honorable Thomas N. Downing
House of Representatives

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SUMMARY OF REVIEW OF

LEWIS RESEARCH CENTER'S POLICY AND PRACTICES

FOR FUNDING COSTS OF OPERATIONS

The operating expenses of the National Aeronautics and Space Administration (NASA) have been funded from two appropriations since 1964. The Research and Program Management (R&PM) appropriation was established as a 1-year appropriation for general program support; the Research and Development (R&D) appropriation was established as a no-year appropriation for specific projects. The two appropriations were established to facilitate the Congress' evaluation of expenses and to reduce the amount available for reprogramming between research and development and operations expenses. Previously there had been one appropriation entitled "Research, Development, and Operations," and reprogramming was permitted freely within these areas. Major construction projects are funded from a third appropriation.

The R&PM appropriation provides funds for operating laboratories, managing programs, and supporting other institutional activities. Other institutional activities include minor construction; hire, maintenance, and operation of administrative aircraft; purchase and rental of cars; and maintenance, repair, and alteration of real and personal property.

The R&D appropriation provides funds for the conduct and support of aeronautical and space research and development activities which include research; development; services; minor construction; maintenance, repair, and alteration of real and personal property; and purchase, hire, maintenance, and operation of other than administrative aircraft.

For fiscal years 1969, 1970, and 1971, the funds obligated for the operations of the Lewis Research Center increased each year, as shown in the following table.

<u>Appropriation</u>	<u>Fiscal year</u> <u>1969</u>	<u>Fiscal year</u> <u>1970</u>	<u>Fiscal year</u> <u>1971</u>
R&PM	\$ 67,844,878	\$ 73,897,971	\$ 77,950,979
R&D	<u>103,352,264</u>	<u>108,021,577</u>	<u>126,220,629</u>
Total	<u>\$171,197,142</u>	<u>\$181,919,548</u>	<u>\$204,171,608</u>

The breakdown of these obligations by object class is included on page 13.

Because of the similarity of the language in NASA's R&D and R&PM appropriations, we directed our review toward gaining an understanding of why selected transactions were charged to either the R&PM or the R&D appropriation. Specifically we reviewed

- NASA's authorization to spend funds for fiscal years 1969, 1970, and 1971;
- NASA's and the Center's written policies and procedures for charging the R&PM and R&D appropriations;
- the Center's accounting and budget records, to determine the R&PM and R&D appropriation funds obligated in fiscal years 1969, 1970, and 1971; and
- transactions charged to the R&PM and R&D appropriations in fiscal year 1971.

We also interviewed Center officials to obtain the rationale for charging either the R&PM or the R&D appropriation.

NASA'S POLICY FOR CHARGING R&PM AND R&D APPROPRIATIONS

NASA's policy for charging appropriations is that the use is more important than the nature of the item. During the 1965 appropriation hearings, NASA presented the following statement on its policy for charging appropriations.

"It is the NASA concept that the AO [Administrative Operations, now R&PM] appropriation covers expenses not otherwise provided for, for the operation of NASA, which fall generally in the areas of institutional and general administrative and technical support. Certain elements of cost are included only in AO such as the compensation and travel of government employees.

"The R&D appropriation covers requirements directly related to and reasonably identifiable with R&D programs and projects. ***"

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CENTER'S POLICY AND PRACTICES FOR CHARGING R&PM AND R&D APPROPRIATIONS

The Lewis Research Center's policy and practices for charging the appropriations generally follow NASA's policy-- expenses for specific projects are charged to the R&D appropriation, and expenses that cannot be identified with specific projects are charged to the R&PM appropriation.

This policy, however, was not applied to every transaction that we reviewed. We reviewed 229 transactions for fiscal year 1971. The transactions were selected on a judgment basis. A few transactions which were identified with a project were charged to the R&PM appropriation; other transactions which were not identified with a project were charged to the R&D appropriation. Transactions which illustrate the Center's implementation of NASA's policy are discussed in the following paragraphs.

- The Center obligated \$60,912 for miscellaneous offset printing, duplicating, and binding. Such services which were classified as general institutional support and which had cost \$3,958 were charged to the R&PM appropriation. Similar services which had cost \$56,954 were charged to the R&D appropriation because they were identified with specific projects.
- The Center obligated \$431,376 for liquid nitrogen. The nitrogen was ordered on an as-needed basis. Costs of \$399,785 were identified with specific projects and were charged to the R&D appropriation; the remaining costs of \$31,591 were for replenishing the general laboratory supply and were charged to the R&PM appropriation. The laboratory supply is used on research and development projects, but, because the Center could not determine the amount used by each project, the R&PM appropriation was charged.
- The Center purchased two types of transducers and charged \$98,677 to the R&D appropriation and \$32,319 to the R&PM appropriation. One type was charged to the R&D appropriation because it was purchased for a specific project. The other type was charged to the R&PM appropriation because it was a nonstandard inventory item. The Director of Resources Management told us that a nonstandard inventory item was one for which

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experience did not justify an on-hand supply but was ordered because a future need was anticipated even though specific projects could not be identified. The cost of these items is charged to the R&PM appropriation.

- Maintenance and repairs of buildings were charged to both R&D and R&PM appropriations. Examples include \$59,000 charged to the R&PM appropriation for a service contract to provide miscellaneous painting as required at the Center and \$1,450 charged to the R&D appropriation to repair and maintain certain facilities used on a research project.
- Metal purchases were charged to both R&PM and R&D appropriations. The Center charged \$30,943 to the R&PM appropriation for the purchase of disk forgings and bar stock which were to be used for general repairs throughout the Center. The Center charged \$23,149 to the R&D appropriation for platinum wire because, according to agency policy, the wire was a standard inventory, or common-use, item. The Director of Resources Management said that standard inventory items were those items stocked because of their frequent and common use and that experience determined which appropriation was to be charged--which in the case of the platinum wire was the R&D appropriation.
- The Center purchased equipment for common-use application. Two items of equipment were a \$114 sewing machine and a \$6,269 pyrometer. Although both items would be used on many projects, the cost of the sewing machine was charged to the R&D appropriation and the cost of the pyrometer was charged to the R&PM appropriation as general-purpose equipment. The Director of Resources Management said that the charge was made to the R&D appropriation under the first-user concept, which means that an item with common-use application is identified with the project on which it is first used.

During our review of the 229 transactions for fiscal year 1971, we identified charges for six transactions that were transferred from the R&D appropriation to the R&PM appropriation. The transfers were made during the last 10 days of the fiscal year. We did not find any cases among the

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transactions that we reviewed in which charges were transferred from the R&PM appropriation to the R&D appropriation.

Although we attempted to determine the validity of the transfers by reviewing additional documentation and by interviewing appropriate officials involved with the purchases, we were advised by the Director of Resources Management that he would not permit us to go directly to the persons involved but that his staff would get the information for us. The restrictions placed on us were discussed with your office, and it was agreed that it would not be necessary for us to further pursue these matters with NASA.

A description of the six transactions and the Director's rationale for the changes, which we did not confirm independently, follow.

<u>Contract or purchase order</u>	<u>Amount</u>	<u>Description of transaction</u>
NAS3-9716		Convert spacecraft to public exhibit
Amendment 43	\$20,006	
C-83101-B	1,582	Check valves for Brayton Gas Management Subsystem
NAS3-13769	13,960	Charge amplifiers
C-82615-B	1,134	Current transducers
C-95242-B	1,170	Nobium wire
NAS3-15615	6,140	Overhaul surface grinder

NAS3-9716--Amendment 43 increased the contract award fee. The amendment was the last charge made under the contract for the Space Electric Rocket Test Project. According to the Director one spacecraft in the project was converted for public exhibit and would benefit the Center's image. He stated that, since the Center did not want to use an involved cost accounting method to determine the cost, the last change order amount was used. Although the concept of charging the conversion cost to the R&PM appropriation appears reasonable, we do not consider the basis for determining the amount of the transfer to be sound.

C-83101-B--The check valves were purchased as replacements for check valves that were being used in two research rigs. The Director stated that the original valves, which were charged to the R&D appropriation, were not working properly. The defective check valves

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were put in inventory. He said that the replacement valves were charged to the R&PM appropriation as a non-standard inventory item.

NAS3-13769--The purchase order showed that the amplifiers were designated for the Supersonic Aircraft Technology Project and were to be charged to the R&D appropriation. According to the Director these amplifiers were later charged to the R&PM appropriation because they were ordered for shelf use and were not for a specific project.

C-82615-B--These transducers were for general institutional support and could be reused if they were not damaged.

C-95242-B--This wire was not a regular stock item. The Center needed 10 feet of wire for a project but had to buy a minimum of 300 feet. The Center has little need for the additional wire but will use it over several years.

NAS3-15615--The grinder overhaul could not be identified with a specific project.

We asked the Director of Resources Management why these charges had been transferred to the R&D appropriation at the end of the fiscal year. He said that the budget office periodically reviewed appropriation charges for accuracy and that changes were made throughout the year as incorrect charges were found.

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LEWIS RESEARCH CENTER
SUPPORT SERVICE CONTRACTS AND PURCHASE ORDERS
FISCAL YEARS 1969, 1970, AND 1971

NASA's budget presentation for fiscal year 1971 showed a list of support service contracts and purchase orders amounting to over \$100,000 for fiscal years 1969, 1970, and 1971. Accounting records at the Center show the following amounts obligated against these contracts and purchase orders as of June 30, 1971.

Contractor and contract or purchase order number	Fiscal year 1969 appropriation		Fiscal year 1970 appropriation		Fiscal year 1971 appropriation	
	R&PM	R&D	R&PM	R&D	R&PM	R&D
Servitech, Inc.:						
NAS3-13355	\$ -	\$ -	\$ 4,300	\$143,660	\$ 359	\$ 24,472
NAS3-14775	-	-	-	344	792	136,371
Tanksley and Associates:						
NAS3-13928	-	5,405	-	231,557	-	290,179
Adache Associates:						
NAS3-13929	-	-	-	66,888	-	53,817
IBM, Inc.:						
C-40548-B	149,764	-	-	-	-	-
C-60726-B	-	-	-	158,623	-	-
C-82428-B	-	-	-	-	-	170,757
Teledyne Isotopes:						
NAS3-10268	1,037,654	-	650,242	447,331	662,049	566,908
Wackenhut Services:						
NAS3-11447	645,310	-	713,698	-	804,679	-
Ridge Maintenance:						
NAS3-12700	524,554	-	99,332	-	-	-
Atlantic Maintenance:						
NAS3-13799	-	-	634,950	-	503,787	-
Technitrol Engineering Corp.:						
NAS3-13028	102,168	-	-	-	-	-
NAS3-14554	-	-	117,803	-	-	-
Technology/Scientific Ser- vices, Inc.:						
NAS3-15475	-	-	-	-	128,400	-

Except for the IBM purchase orders and the Teledyne Isotopes contract, the costs for the same services were charged to the same appropriations each year. In 1969 the Center charged the costs for the IBM and Isotopes services to the R&PM appropriation. In the following 2 years, the costs for IBM services were charged entirely to the R&D appropriation and the costs for Isotopes services were charged to the R&PM and R&D appropriations.

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The Director of Resources Management explained that these costs were charged differently after 1969 because of a May 2, 1969, directive from NASA Headquarters. The directive advised several Centers to charge large-scale automatic data processing procurements to the R&D appropriation. The Director believed that, because IBM provided maintenance services to research equipment, the charge for the services should be made to the R&D appropriation. For the Isotopes contract the Director said that he saw a parallelism between the May 2, 1969, directive and the services provided by Isotopes and therefore charged a part of the contract cost to the R&D appropriation.

The support services provided by the contracts and purchase orders and the Director's rationale for charging the cost of these services to the R&D or R&PM appropriations in fiscal year 1971 follow.

- Servitech, Inc., provided mechanical and electrical drafting services. The costs charged to the R&PM appropriation were for drawings of general building maintenance alterations or alterations that could not be identified with specific research projects. The cost of services identified with a specific research project were charged to the R&D appropriation.

Some charges to the R&PM appropriation were for drawings of alterations to the High Energy Fuels Laboratory and the Engine Research Building. The R&D appropriation charges were for drafting services on such projects as the Supersonic Aircraft Technology Project and the Vertical/Short Take-Off and Landing Project.

- Tanksley and Associates provided engineering design, drafting, and senior design engineering services. Each time that a service was provided it was identified with specific research projects.
- Adache Associates provided engineering services for analysis and design of support equipment used in testing research hardware. Each time that a service was provided it was identified with specific research projects.
- IBM provided maintenance service on Government-owned automatic data processing and punch-card equipment.

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The cost of these services was charged to the R&D appropriation in accordance with the May 2, 1969, directive.

- Teledyne Isotopes provided stockroom services, security and escort services, and services incident to operating a nuclear reactor. The costs of general institutional support services were charged to the R&PM appropriation, and the costs of technical services, such as radiation and instrument testing, were charged to the R&D appropriation.
- Wackenhut Services provided protective security, guard, visitor control, personnel transportation, and mail distribution services. These services were considered to be other institutional activities, and the costs were charged to the R&PM appropriation.
- Atlantic Maintenance provided custodial services. The costs of such general functions as these are charged to the R&PM appropriation.
- Technology/Scientific Services provided services, labor, material, and equipment to maintain and operate boilers and auxiliary equipment in the steam-generating plant. Heating equipment maintenance was considered to be a general operating expense, and the cost of these services was charged to the R&PM appropriation.

CONCLUSION

The language in NASA's R&D and R&PM appropriations allows similar transactions to be charged to either appropriation. The Lewis Research Center's policy and practices for charging the appropriations generally follow NASA's policy--expenses for specific projects are charged to the R&D appropriation, and expenses that cannot be identified with specific projects are charged to the R&PM appropriation.

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APPENDIX

LEWIS RESEARCH CENTER

CLEVELAND, OHIO

TOTAL OBLIGATIONS BY MAJOR OBJECT CLASS AND APPROPRIATION

FOR FISCAL YEARS 1971, 1970, and 1969

Object class	Description	Fiscal year 1971 appropriation	
		R&PM	R&D
000	Personnel services	\$62,710,572	\$ -
100	Personnel benefits	5,207,272	-
200	Travel and transportation of persons	1,097,688	-
220	Transportation of things	66,859	252,875
230	Rents, communications utilities	3,019,735	86,199
240	Printing and reproduction	74,015	79,072
251	Research and development		102,485,261
252	Engineering services	24,191	910,649
258	Other service contracts	91,522	2,666,085
271 to 277	Maintenance, repairs, and alterations	1,279,667	1,966,793
291 to 296	Custodial services	2,094,943	26,312
253, 254, 255, 257			
281 to 287, and 289	All other services	909,314	2,050,063
320	Land and structures	-	73,816
411,421, 422	Grants, claims, and awards	5,796	25,000
500	Materials and supplies	789,915	6,166,359
600	Equipment--capitalized	419,742	7,023,785
626	Equipment--not capitalized	159,748	2,408,360
		<u>\$77,950,979</u>	<u>\$126,220,629</u>

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APPENDIX

Fiscal year 1970 appropriation		Fiscal year 1969 appropriation	
<u>R&PM</u>	<u>R&D</u>	<u>R&PM</u>	<u>R&D</u>
\$60,248,273	\$ -	\$53,763,528	\$ -
4,605,877	-	4,086,872	-
944,854	-	900,079	-
88,450	163,013	101,284	267,982
2,681,429	64,235	3,180,342	5,457
86,446	71,222	70,734	27,562
-	86,327,241	-	85,799,592
15,093	666,460	516,312	24,980
149,138	3,540,889	50,770	2,001,783
941,938	1,918,749	1,150,585	1,238,651
2,220,370	20,529	1,803,004	165
811,175	2,544,367	775,922	1,658,184
-	24,250	-	-
3,846	-	16,231	174,926
739,478	6,903,826	953,471	6,552,696
282,133	2,719,427	336,266	3,022,638
79,471	3,057,369	139,478	2,577,648
<u>\$73,897,971</u>	<u>\$108,021,577</u>	<u>\$67,844,878</u>	<u>\$103,352,264</u>

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